PRELIMINARY STUDY ON PHYTOLITHS IDENTIFICATION IN TWO MAJOR RIVERBANKS OF SELANGOR (GOMBAK AND KLANG RIVERBANKS)

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ABSTRACT

Phytoliths are plant fossils found within the plant cells of embryophytes and it can be deposited into the uppermost horizon of the soil when embryophytes die and decay. This will cause the phytoliths to be released from its organic matrix and chemisorbed into the soil particles. This study aimed to determine the presence and morphology of phytoliths found in two major riverbanks of Selangor (Gombak and Klang riverbanks). Composite soil samples were collected from the top two cm of the soil of Gombak and Klang riverbanks with each composite consists of five subsamples. The distance between each subsample is two m apart. The composite soil samples were subjected to extraction process before phytoliths isolation which involved deflocculation using 5% of sodium hexametaphosphate, decarbonation using 10% hydrochloric acid, organic material removal using 65% nitric acid and potassium chlorate, clay removal via centrifuge sedimentation and, organic matter and humic colloids removal using 10% potassium hydroxide. Heavy liquid zinc bromide/hydrochloric acid was used to isolate phytoliths. The presence and morphology of phytoliths between the two riverbanks were identified and counted using comparison microscope. The results were compared between the two riverbanks to determine if discrimination of soil in different site is possible.
Key words: Phytoliths, forensic science, soil, plant fossils